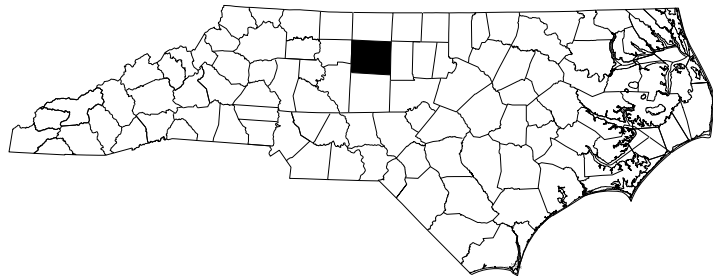


PROJECT: I-5734A

CONTRACT NO:

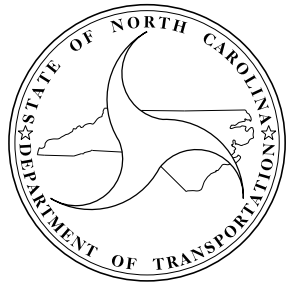
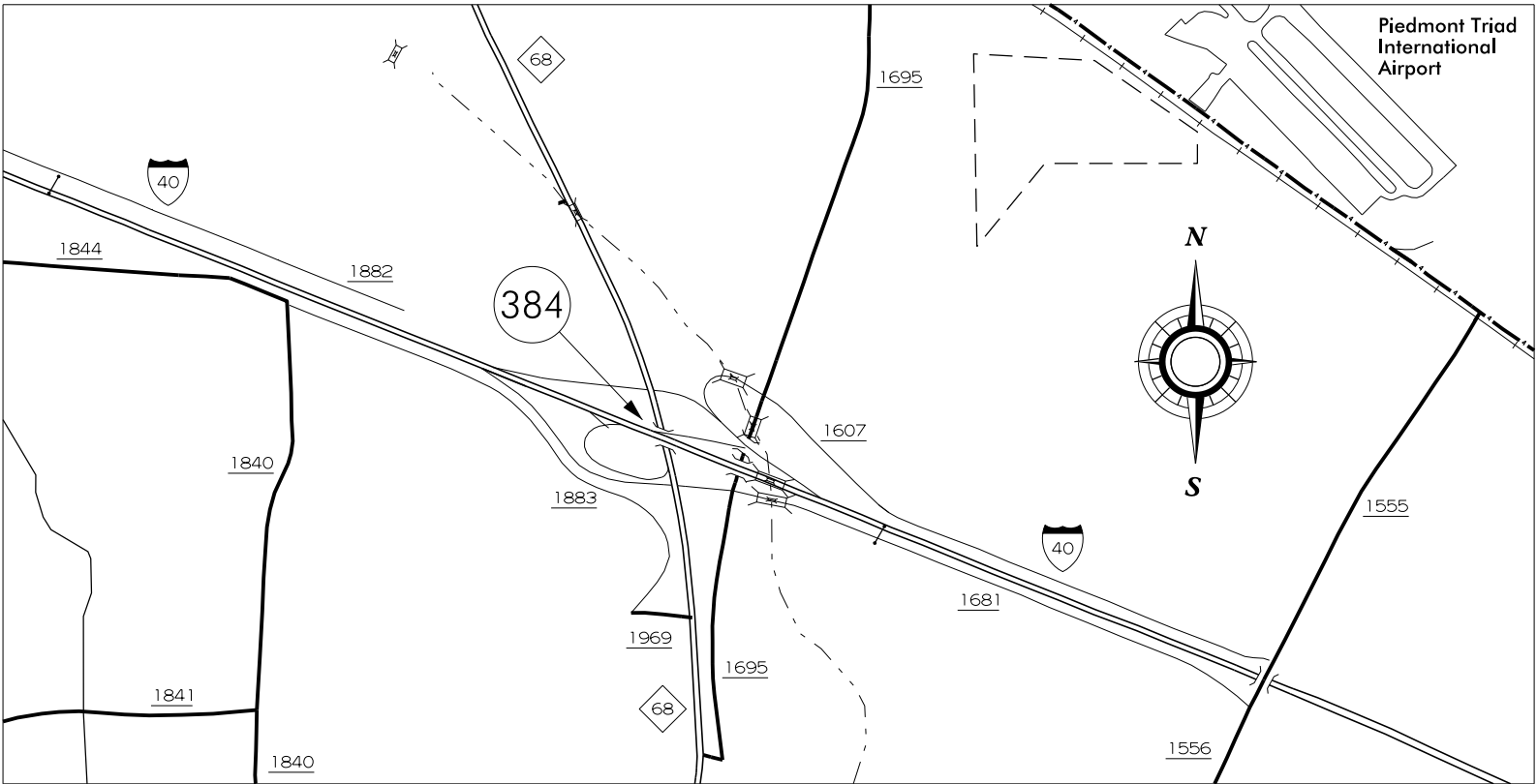


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5734A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
52010.1.2	NHPIM-0040(7)208	PE	
52010.3.2	NHPIM-0040(7)208	CONST	

LOCATION: BRIDGE #384 ON I-40 OVER NC 68

TYPE OF WORK: BRIDGE PRESERVATION - SCARIFICATION, HYDRO-DEMOLITION, DECK REPAIR, LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, JOINT DEMOLITION, PAINTING EXISTING STRUCTURE AND SUBSTRUCTURE REPAIR.



DESIGN DATA

BRIDGE #384 ADT 2013 = 109,000

PROJECT LENGTH

BRIDGE #384 = 0.05 MILE

Prepared in the Office of:
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

E. E. MURRAY, P.E.
PROJECT ENGINEER

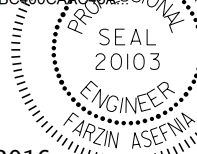
2012 STANDARD SPECIFICATIONS

LETTING DATE:

DocuSigned by:

Farzin Asefnia

E06BC400CAAC45A

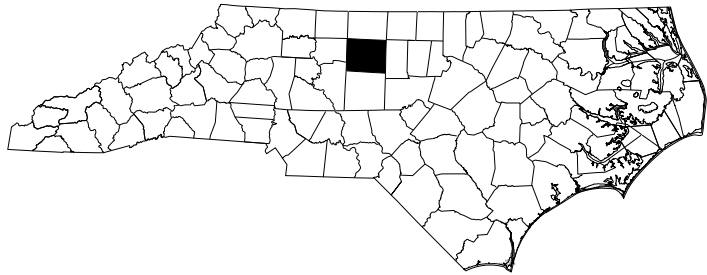


6/2/2016

FARZIN ASEFNIA, P.E.
PROJECT DESIGN ENGINEER

CONTRACT:

PROJECT: I-5734A



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

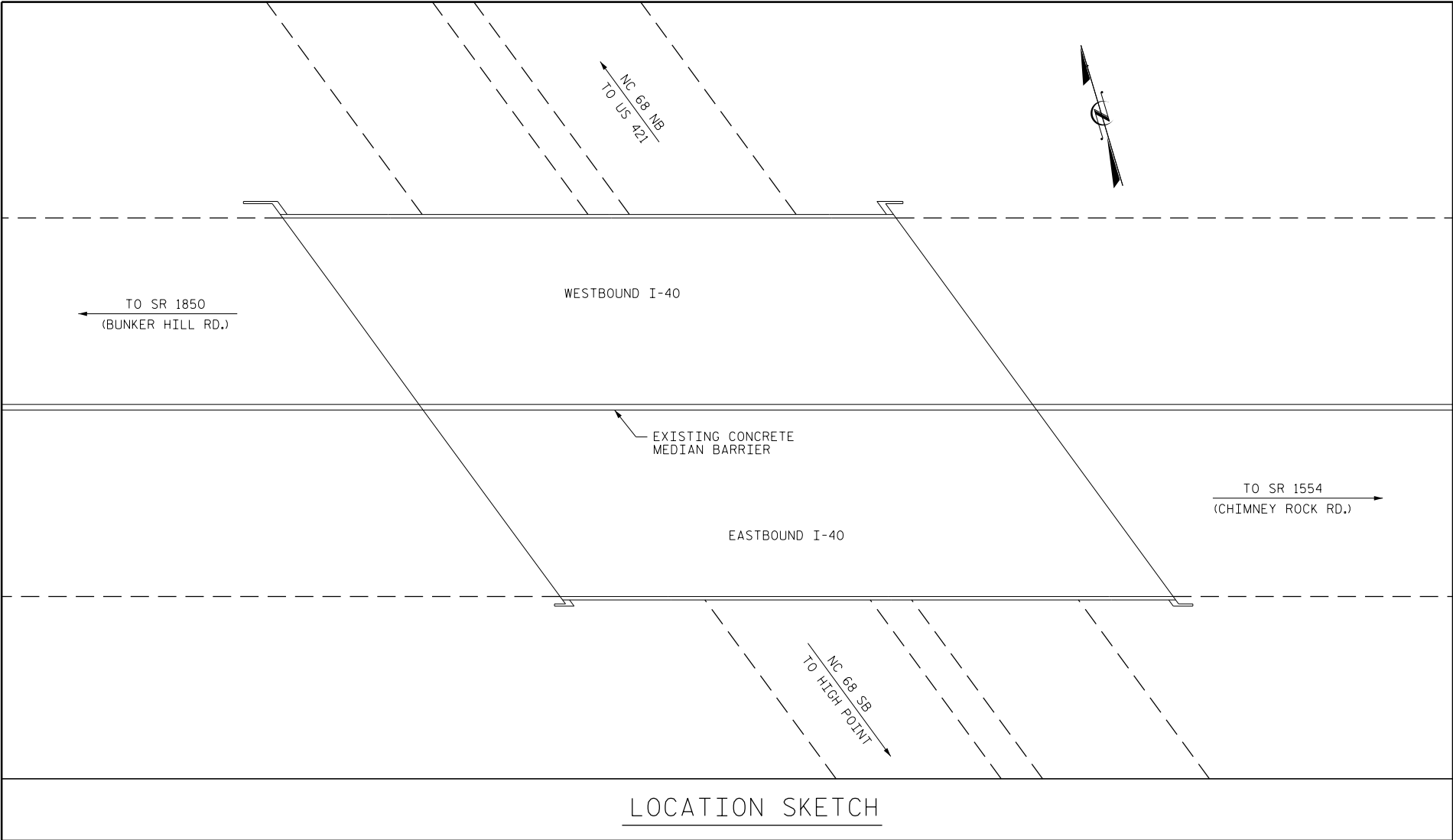
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5734A	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
52010.1.2	NHPIM-0040(7)208	P.E.	
52010.3.2	NHPIM-0040(7)208	CONST.	

LOCATION: BRIDGE #384 ON I-40 OVER NC 68

TYPE OF WORK: BRIDGE PRESERVATION – SCARIFICATION, HYDRO-DEMOLITION, DECK REPAIR, LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, JOINT DEMOLITION, PAINTING EXISTING STRUCTURE AND SUBSTRUCTURE REPAIR.

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS
S-1 – S-17	STRUCTURAL PLANS
SN	STANDARD NOTES



- NOTES:
- INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.
- EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, CLASS II SURFACE PREPARATION, AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISION.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING & DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

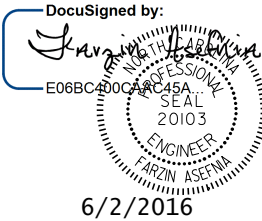
TOTAL BILL OF MATERIAL																		
GROOVING BRIDGE FLOORS	POLLUTION CONTROL	* CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	** LATEX MODIFIED CONCRETE OVERLAY- VES	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY- VES	PAINTING EXISTING WEATHERING STEEL STRUCTURE FOR BRIDGE #---	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	PAINTING CONTAINMENT FOR BRIDGE #---	* VOLUMETRIC MIXER	* CONCRETE FOR DECK REPAIR	BRIDGE JOINT DEMOLITION	EPOXY COATING	SCARIFYING BRIDGE DECK	HYDRO- DEMOLITION OF BRIDGE DECK	ELASTOMERIC CONCRETE	FOAM JOINT SEALS
SQ. FT.	LUMP SUM	SQ.YDS.	SQ. YDS.	C.Y.	SQ.YDS.	LUMP SUM	CU. FT.	CU. FT.	LN. FT.	LUMP SUM	LUMP SUM	CU. FT.	SQ. FT.	SQ. FT.	SQ.YDS.	SQ.YDS.	CU. FT.	LUMP SUM
27,126	LUMP SUM	4	4	129	3083	LUMP SUM	10	94	84	LUMP SUM	LUMP SUM	1	816	2609	3083	3083	204	LUMP SUM

* CLASS II AND CLASS III SURFACE PREPARATION, VOLUMETRIC MIXER, AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

** THE QUANTITY OF LATEX MODIFIED CONCRETE OVERLAY - VES INCLUDES THE 4" OVERLAP BETWEEN OVERLAYS.

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

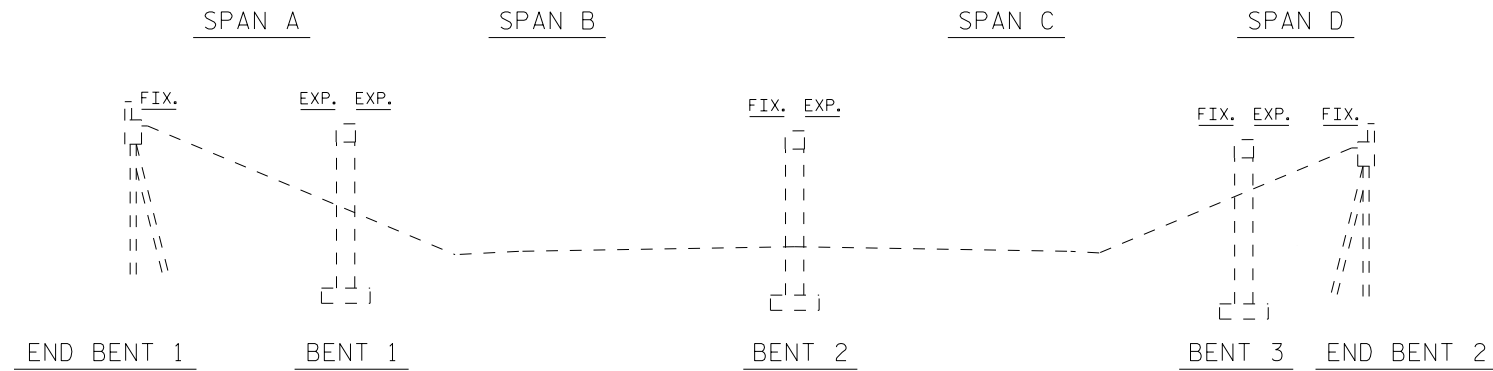
SHEET 1 OF 2



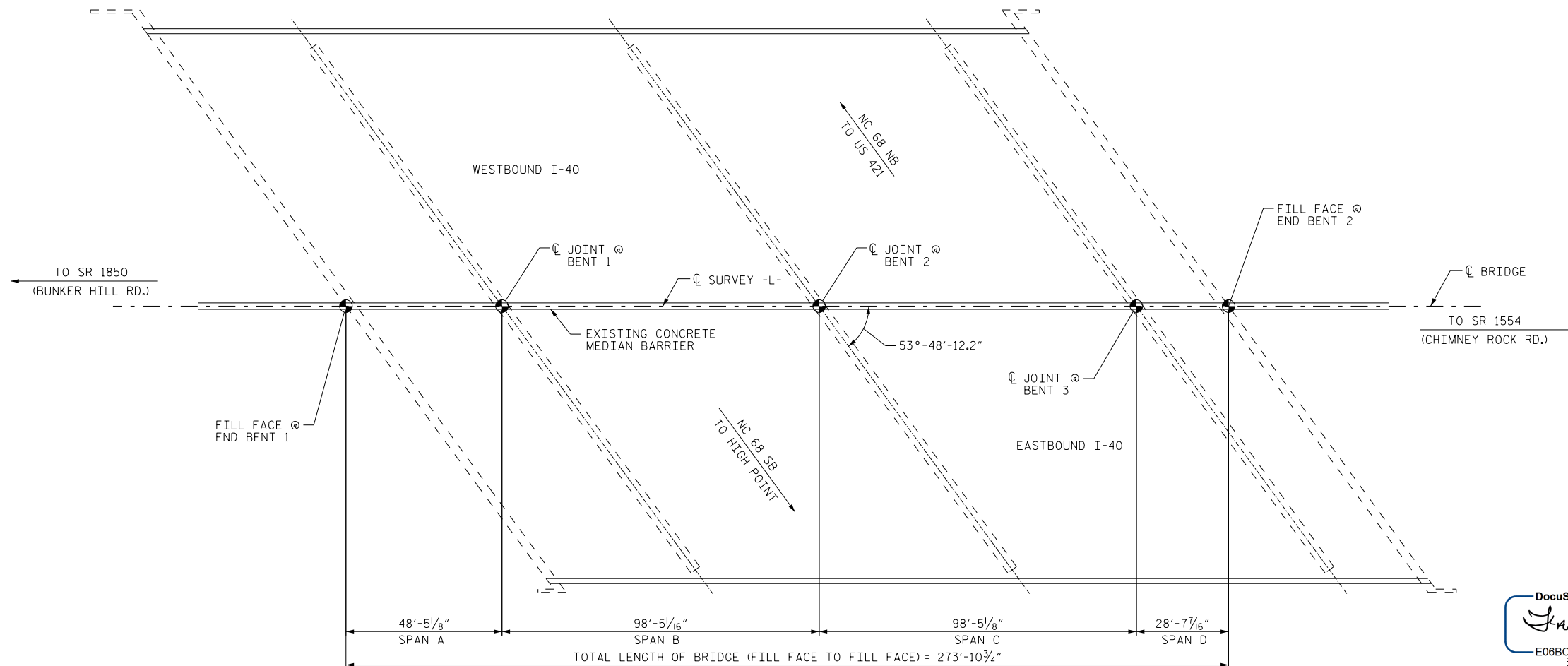
6/2/2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING BRIDGE OVER NC 68 ON I-40 BETWEEN SR 1850 AND SR 1554					
REVISIONS					SHEET NO. S-1
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					TOTAL SHEETS 17

DRAWN BY : D.V. JOYNER DATE : 12/15
CHECKED BY : W. SMITH DATE : 12/15



ELEVATION
SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES



PLAN
COLUMNS AND FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY

I hereby certify that this structure
was rehabilitated according to
these plans or as noted therein.

Resident Engineer _____ Date _____

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO.: 384
SHEET 2 OF 2

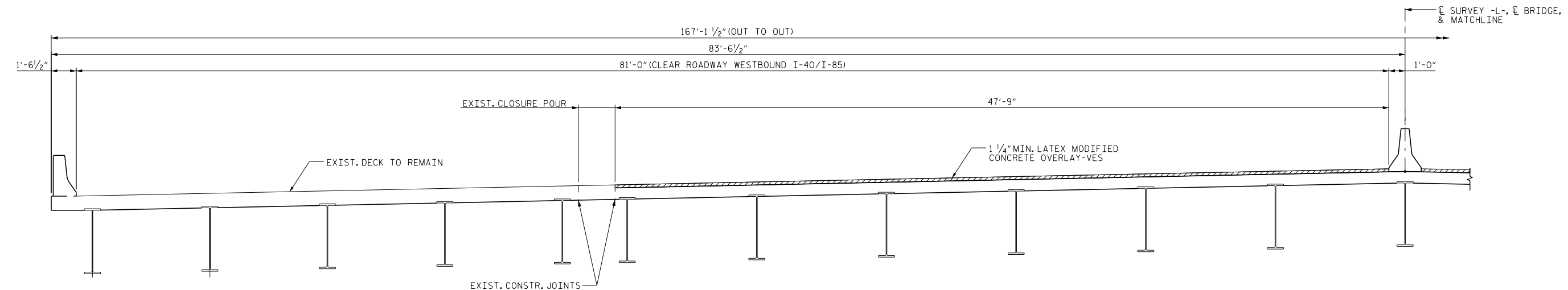
DocuSigned by:
Farzin Asepina
E06BC300C4AC45A
NORTH CAROLINA
PROFESSIONAL
SEAL
20103
ENGINEER
FARZIN ASEPIA
6/2/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			17

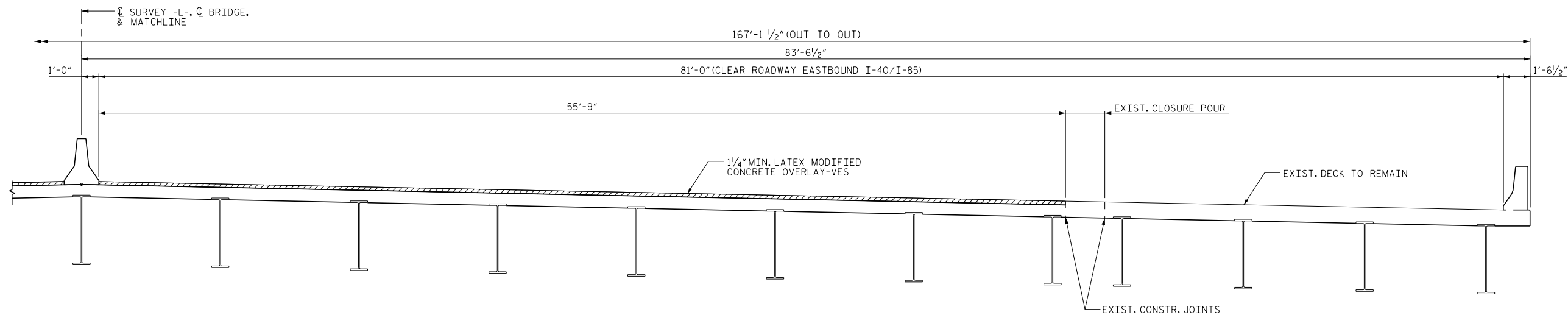
DRAWN BY : D.V. JOYNER DATE : 12/2015
CHECKED BY : W. SMITH DATE : 12/2015

DOCUMENT NOT CONSIDERED
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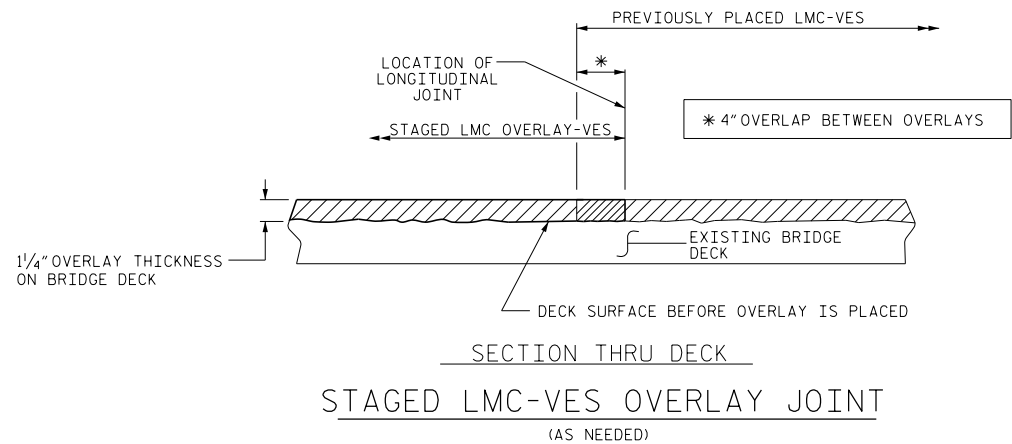
NOTE:
WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACE IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.



TYPICAL SECTION



TYPICAL SECTION



PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

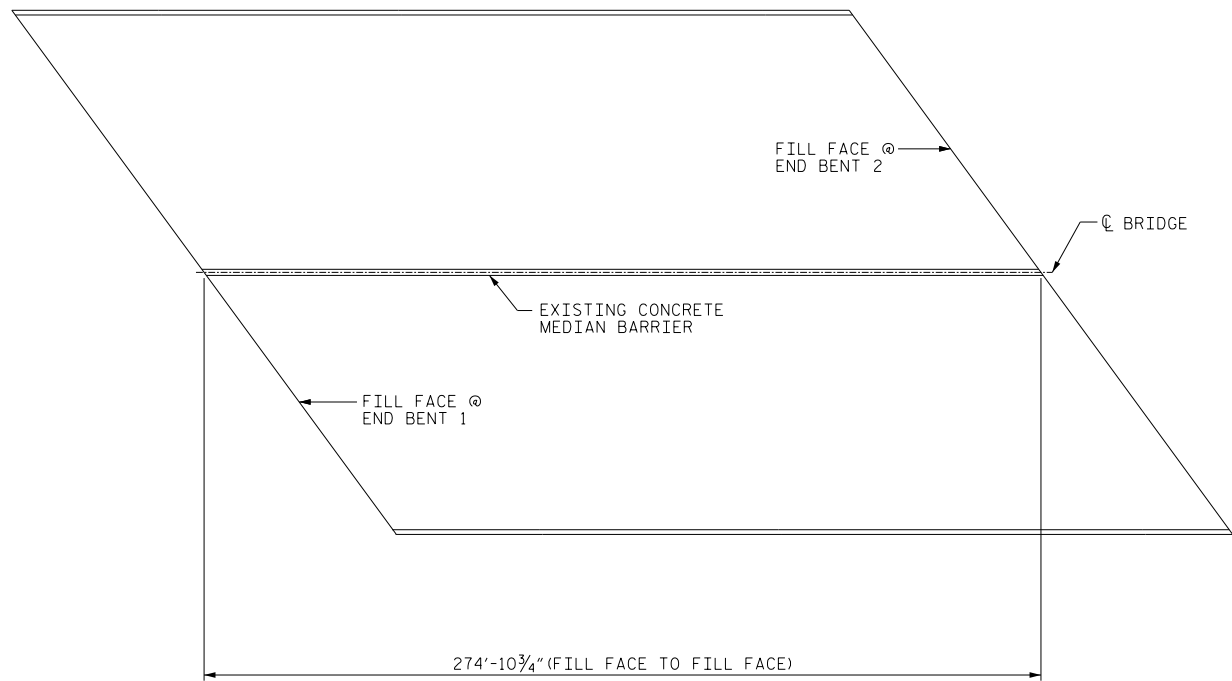
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[Signature]
E06BC700C405A...
PROFESSIONAL SEAL
20103
ENGINEER
FARZIN ASEFMA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH							
SUPERSTRUCTURE							
TYPICAL SECTION & LATEX MODIFIED CONCRETE-VES DETAILS							
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3	
1			3			TOTAL SHEETS	
2			4			17	

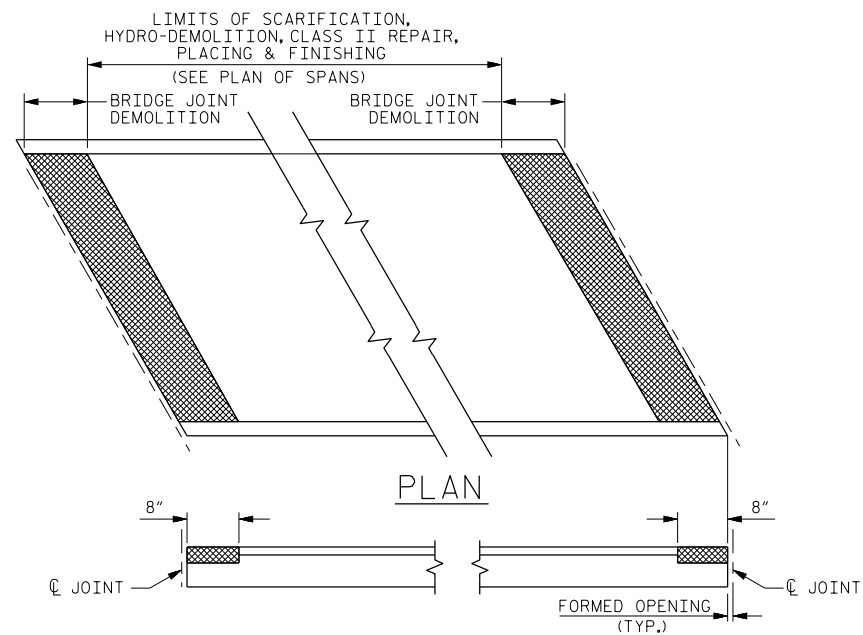
DRAWN BY : DOUG JOYNER DATE : 12/2015
CHECKED BY : W. SMITH DATE : 12/2005

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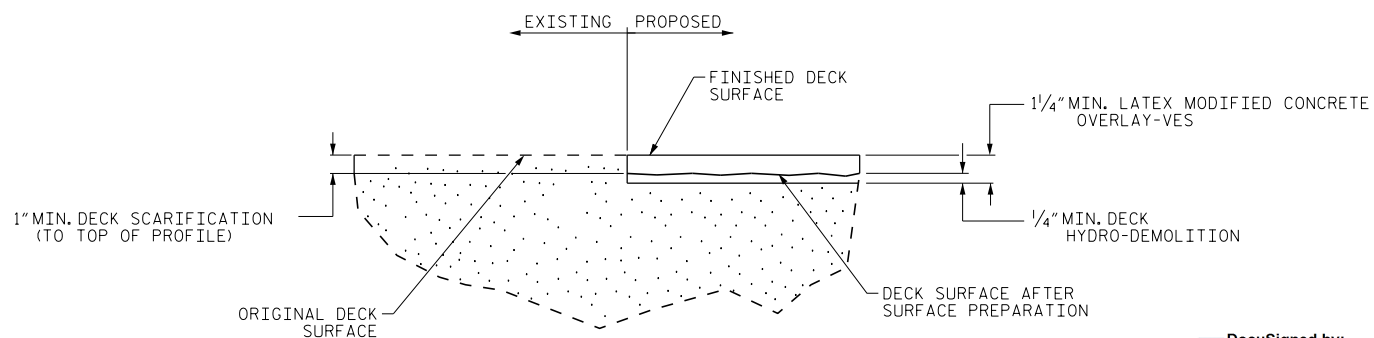
6/2/2016
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PLAN



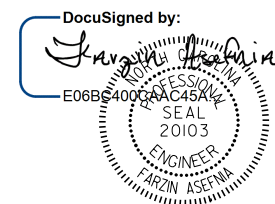
ELEVATION



DETAIL FOR LATEX
MODIFIED CONCRETE OVERLAY-VES

DECK SCARIFICATION,
HYDRO-DEMOLITION, AND
LATEX MODIFIED CONCRETE
OVERLAY-VES

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384



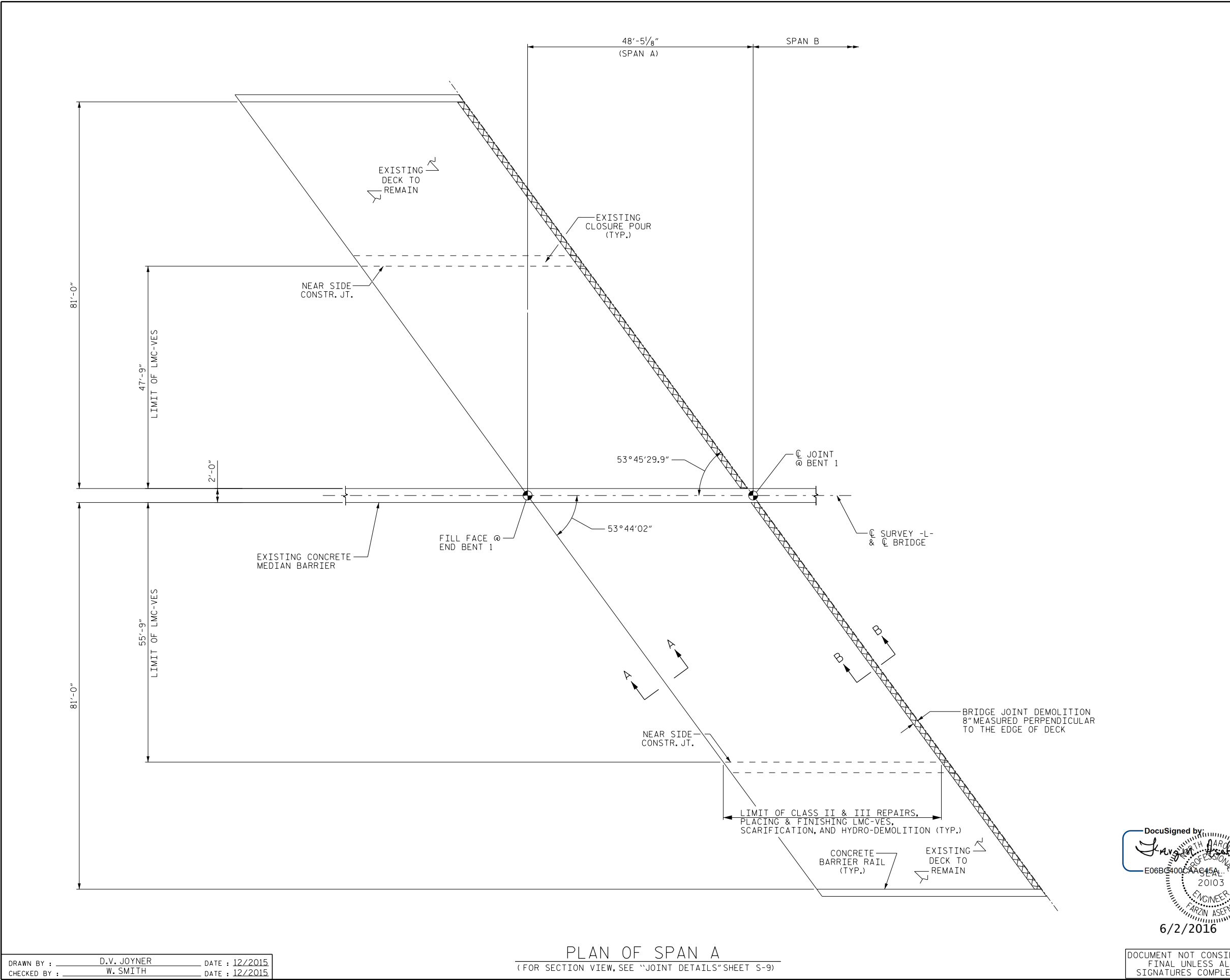
6/2/2016

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2			4			17

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SPAN "A" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	136 SQ. FT.	
SCARIFYING BRIDGE DECK	546 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	546 SQ. YDS.	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

SHEET 1 OF 4

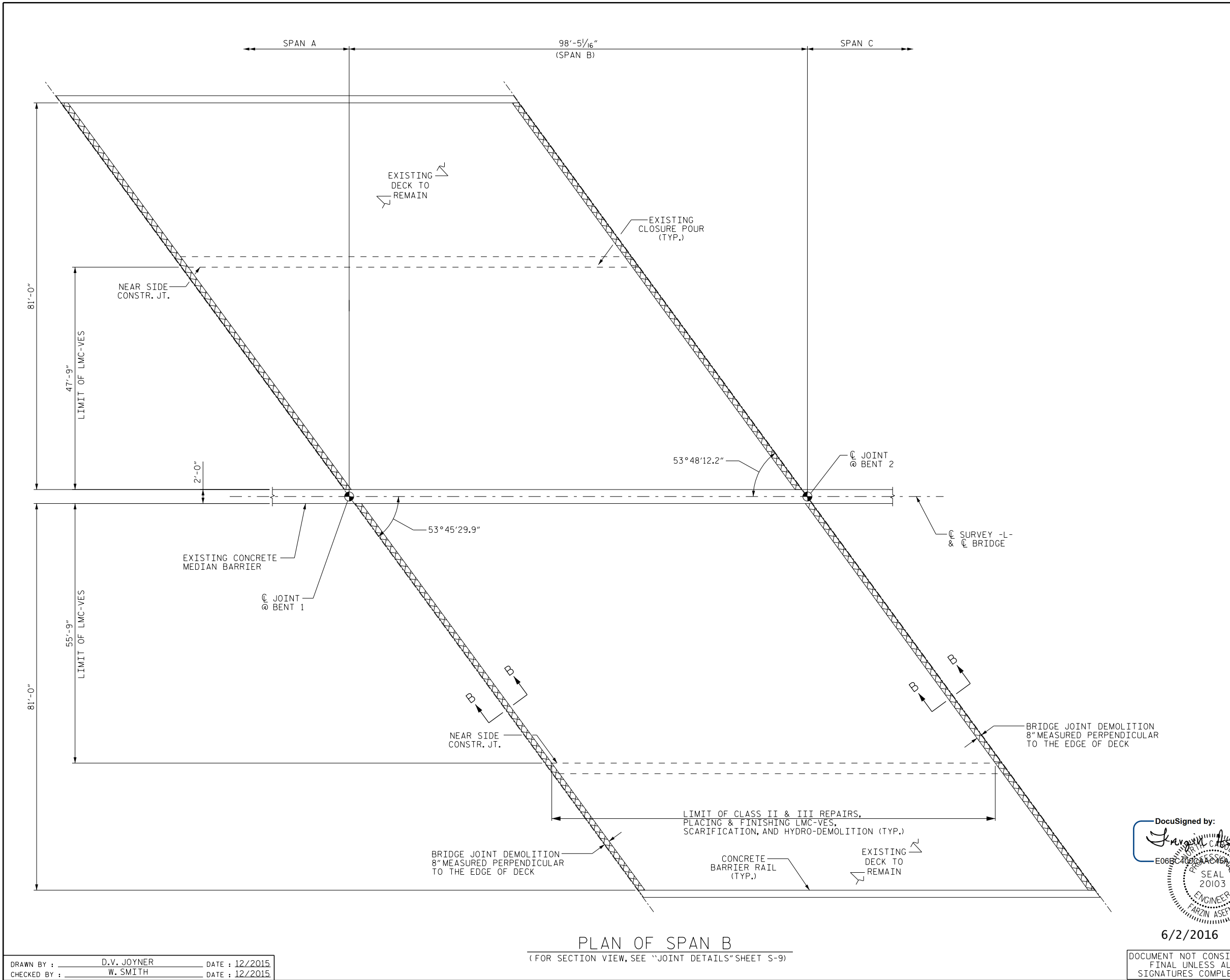
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Farzin Asefina
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20103
ENGINEER
FARZIN ASEFINA
6/2/2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SURFACE PREPARATION SPAN A					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS
S-5					17

DRAWN BY : D.V. JOYNER DATE : 12/2015
CHECKED BY : W. SMITH DATE : 12/2015

PLAN OF SPAN A
(FOR SECTION VIEW, SEE "JOINT DETAILS" SHEET S-9)

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



SPAN "B" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	272 SQ. FT.	
SCARIFYING BRIDGE DECK	1109 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	1109 SQ. YDS.	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384
SHEET 2 OF 4

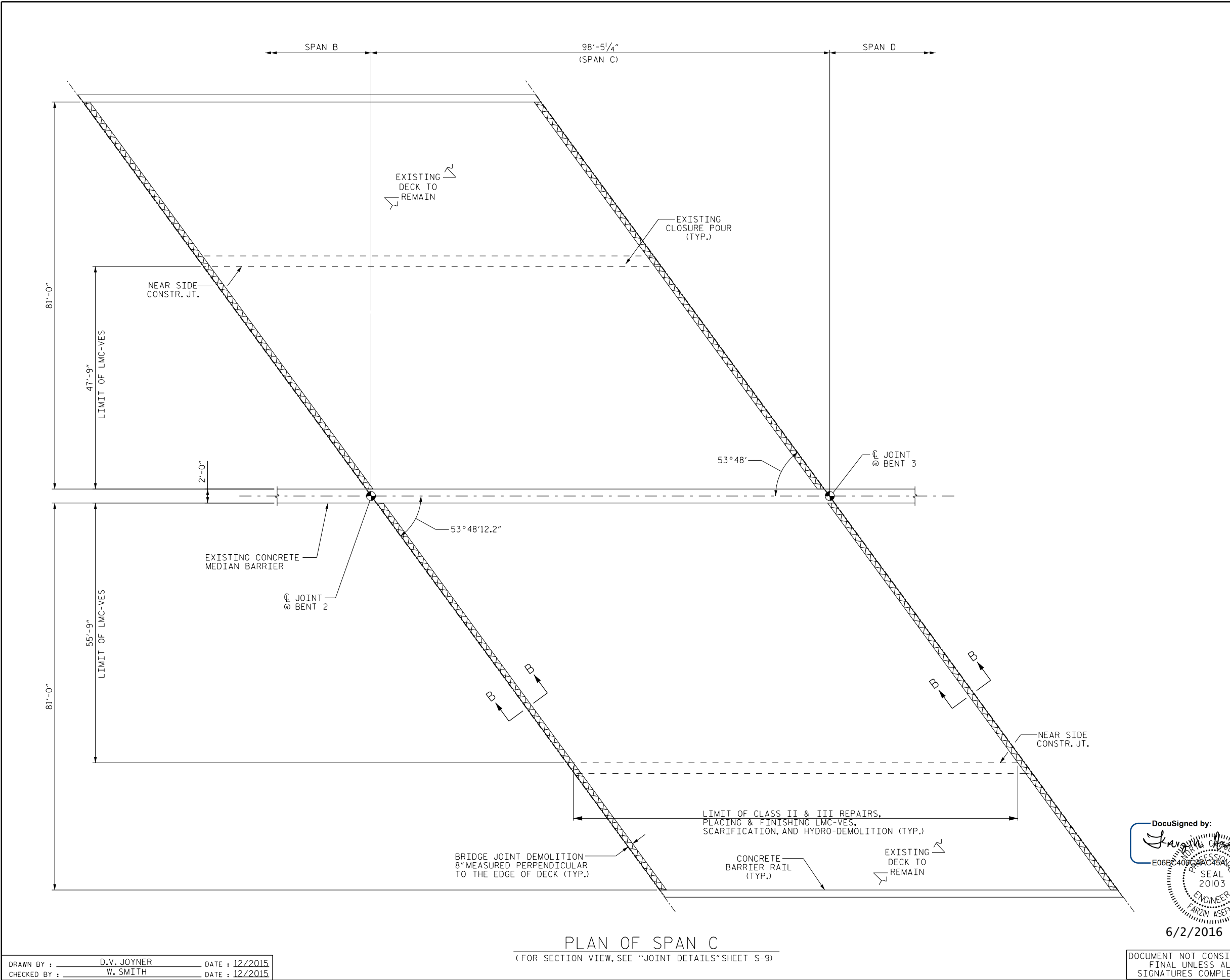
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Farzin Asefina
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SEAL
20103
ENGINEER
FARZIN ASEFINA

6/2/2016

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-6
2			4			TOTAL SHEETS 17

DRAWN BY : D.V. JOYNER DATE : 12/2015
CHECKED BY : W. SMITH DATE : 12/2015



SPAN "C" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	272 SQ. FT.	
SCARIFYING BRIDGE DECK	1110 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	1110 SQ. YDS.	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384
SHEET 3 OF 4

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Farzin Asefina
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SEAL
20103
ENGINEER
FARZIN ASEFINA
6/2/2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SURFACE PREPARATION SPAN C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-7					TOTAL SHEETS 17

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BRIDGE JOINT DEMOLITION
8" MEASURED PERPENDICULAR
TO THE EDGE OF DECK

EXISTING
DECK TO
REMAIN

EXISTING
CLOSURE POUR
(TYP.)

NEAR SIDE
CONSTR. JT.

CL SURVEY -L-
& CL BRIDGE

CL JOINT
@ BENT 3

53°48'30.2"

FILL FACE @
END BENT 2

EXISTING CONCRETE
MEDIAN BARRIER

53°48'

2'-0"

47'-9"
LIMIT OF LMC-VES

55'-9"
LIMIT OF LMC-VES

81'-0"

81'-0"

NEAR SIDE
CONSTR. JT.

LIMIT OF CLASS II & III REPAIRS,
PLACING & FINISHING LMC-VES,
SCARIFICATION, AND HYDRO-DEMOLITION
(TYP.)

EXISTING
DECK TO
REMAIN

CONCRETE
BARRIER RAIL
(TYP.)

SPAN C

28'-7 1/2"
(SPAN D)

PLAN OF SPAN D

(FOR SECTION VIEW, SEE "JOINT DETAILS" SHEET S-9)

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SPAN "D" QUANTITIES

	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	136 SQ. FT.	
SCARIFYING BRIDGE DECK	318 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	318 SQ. YDS.	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.



CLASS II SURFACE PREPARATION



BRIDGE JOINT DEMOLITION



SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION
SPAN D

DocuSigned by:

Farzin Asefma

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PROFESSIONAL SEAL

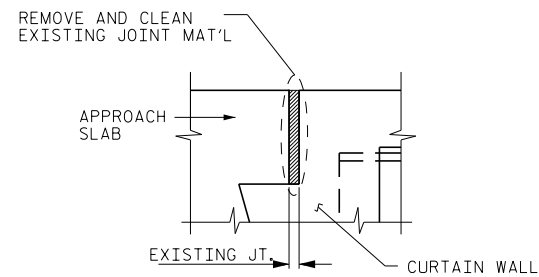
20103

ENGINEER

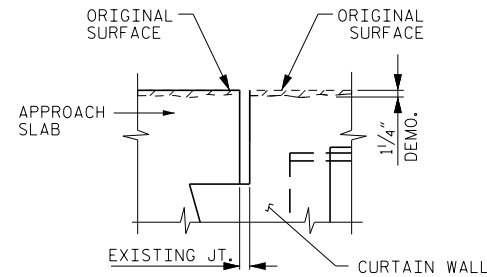
FARZIN ASEFMA

6/2/2016

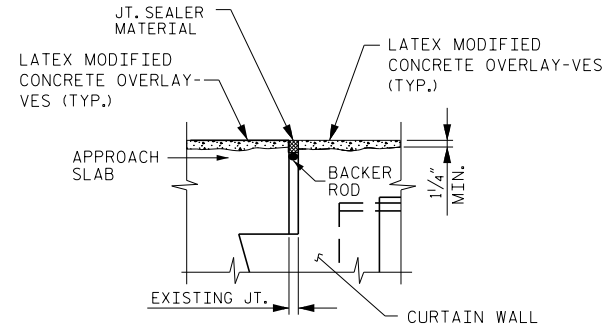
REVISIONS						SHEET NO. S-8 TOTAL SHEETS 17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



PROPOSED JOINT

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

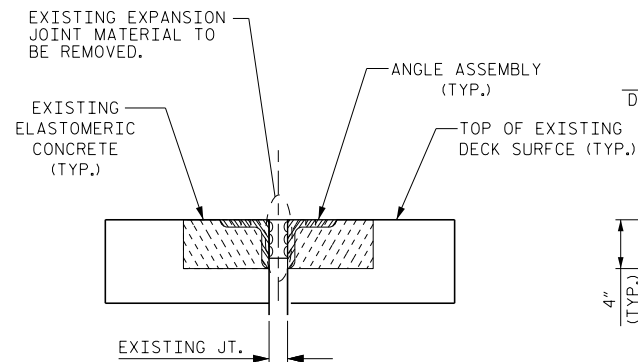
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

RETAIN ALL EXISTING REINFORCING STEEL, CLEAN AND REPAIR AS NEEDED.

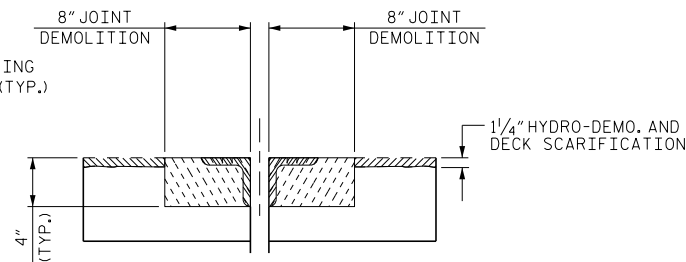
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2\"/>

JOINT INSTALLATION SEQUENCE AT END BENTS

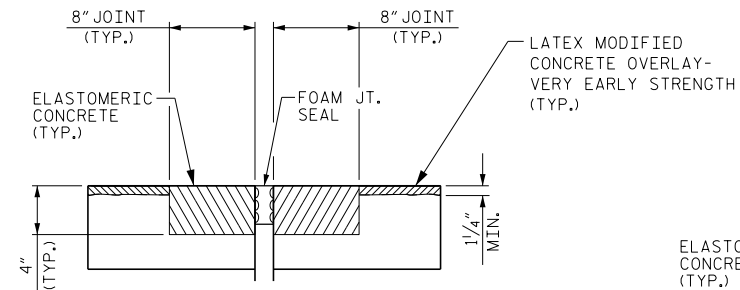
SECTION A-A



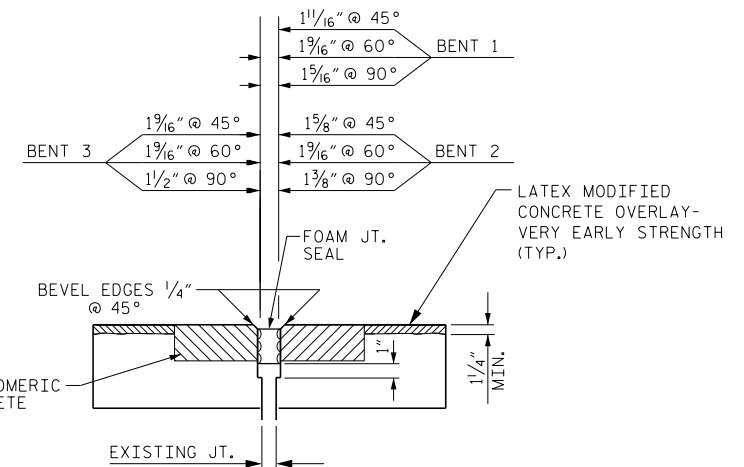
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



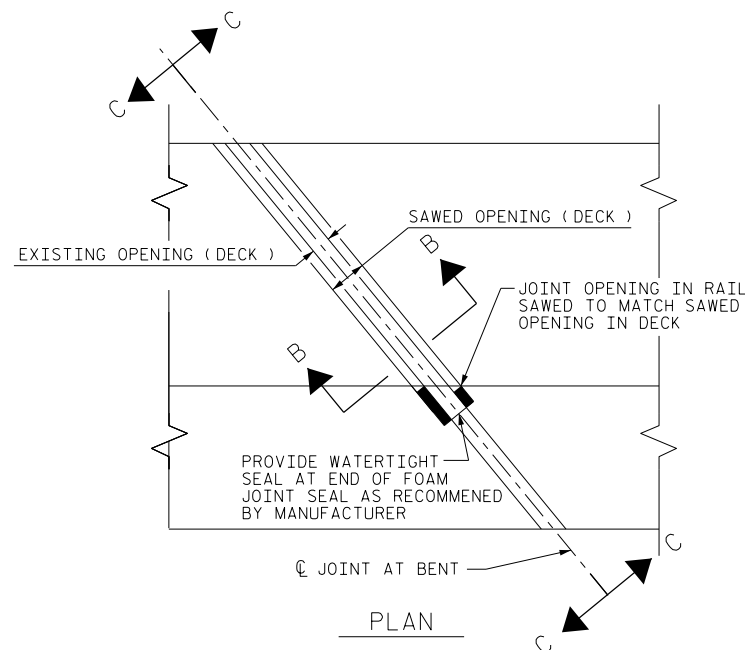
PROPOSED JOINT



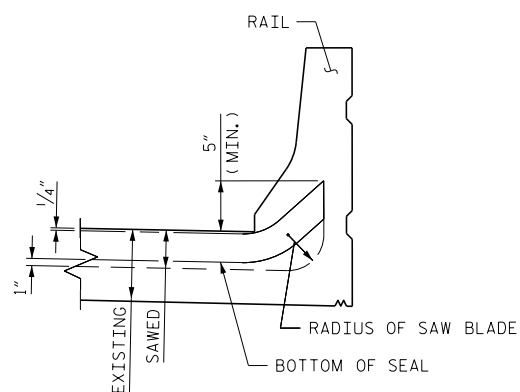
PROPOSED FOAM JOINT SEAL EXPANSION

JOINT INSTALLATION SEQUENCE AT BENTS

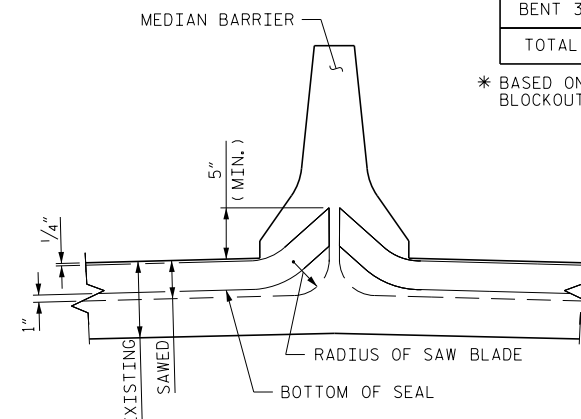
SECTION B-B



PLAN



SECTION C-C



SECTION C-C (FOR MEDIAN BARRIER)

ELASTOMERIC CONCRETE (CU. FT.)*	
BENT 1	68
BENT 2	68
BENT 3	68
TOTAL	204

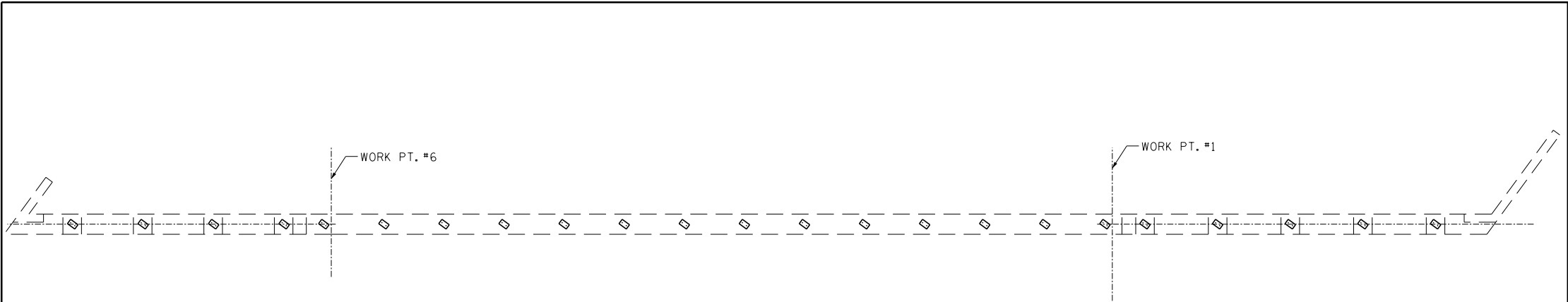
* BASED ON THE MINIMUM BLOCKOUT SHOWN

PROJECT NO. I-5734A
GUILFORD COUNTY
 BRIDGE NO.: 384

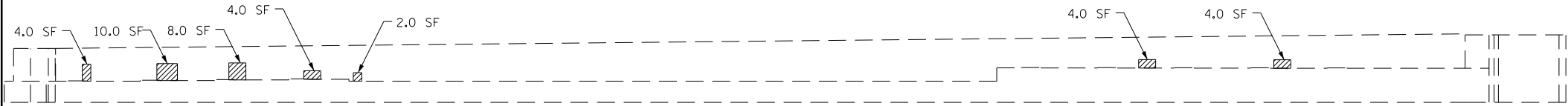
DocuSigned by:
Farzin Asefnia
 E06B400...
 SEAL 2013
 ENGINEER
 FARZIN ASEFNIA
 6/2/2016

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-9
2			4			TOTAL SHEETS 17

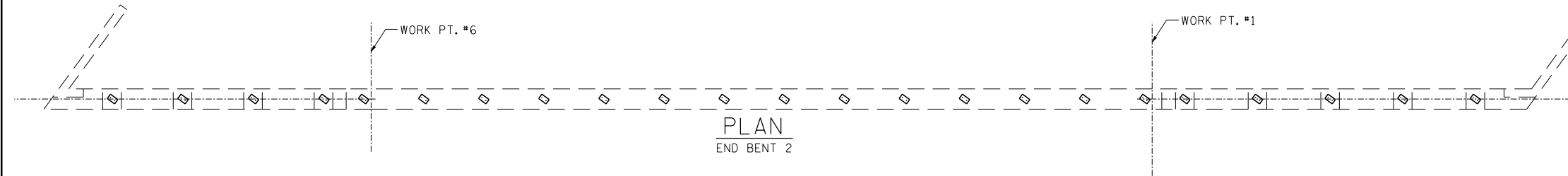
DRAWN BY : D.V. JOYNER DATE : 1/2016
 CHECKED BY : F. ASEFNIA DATE : 1/2016



PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	36.0	9.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
EPOXY COATING	AREA SF			
CAP	304.0			
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	12.0	3		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
EPOXY COATING	AREA SF			
CAP	304.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

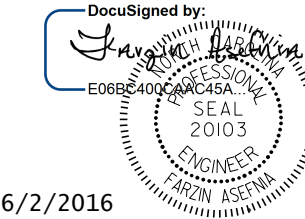
NOTES:

- REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.
- CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.
- CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.
- SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

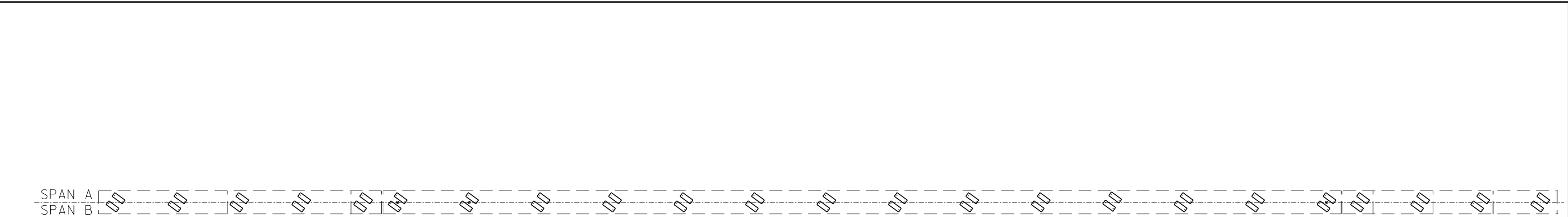
PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1 & 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 17

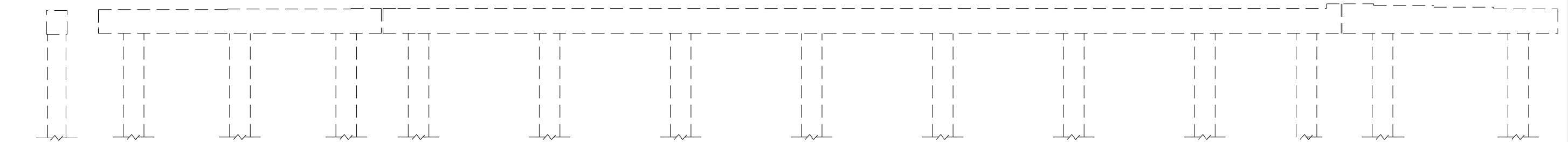
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CHECKED BY : W. SMITH DATE : 10/2015



6/2/2016

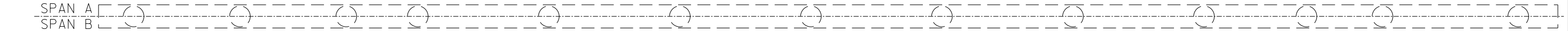


PLAN OF CAP
TOP



END VIEW
NORTH SIDE

ELEVATION
SPAN "A" SIDE



PLAN OF CAP
BOTTOM

- CONCRETE REPAIRS
- SHOTCRETE REPAIR
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			17

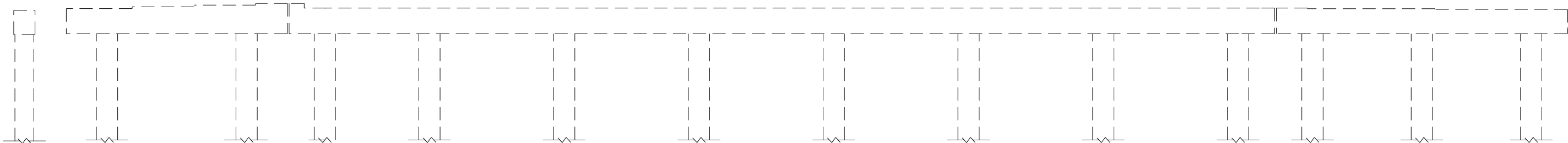
DocuSigned by:
Farzin Asefma
E06B04090A0C45A1
PROFESSIONAL
SEAL
20103
ENGINEER
FARZIN ASEFMA

6/2/2016

DRAWN BY : M. WELDON DATE : 10/2015
CHECKED BY : W. SMITH DATE : 10/2015

REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		LN. FT
EPOXY RESIN INJECTION		LN. FT		
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	667.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.



END VIEW
SOUTH SIDE

ELEVATION
SPAN "B" SIDE

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

NO REPAIR NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE END BENTS PRIOR TO BEGINNING WORK.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

CONCRETE REPAIRS

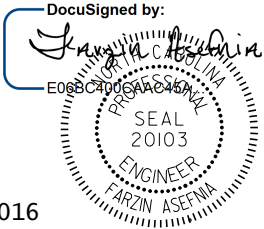
SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					17



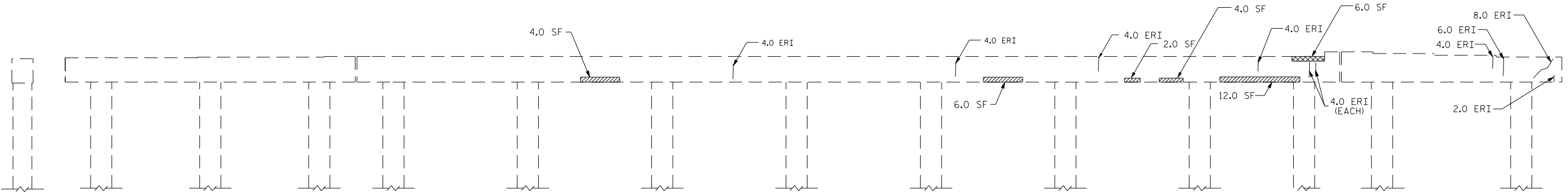
DRAWN BY : M. WELDON DATE : 10/2015
CHECKED BY : W. SMITH DATE : 10/2015

6/2/2016

SPAN B
SPAN C

PLAN OF CAP

TOP



END VIEW

NORTH SIDE

ELEVATION

SPAN "B" SIDE

SPAN B
SPAN C

PLAN OF CAP

BOTTOM

52.0 SF 18.0 SF 42.0 SF 28.0 SF 78.0 SF

- CONCRETE REPAIRS
- SHOTCRETE REPAIR
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		
SHEET NO. S-13					TOTAL SHEETS 17

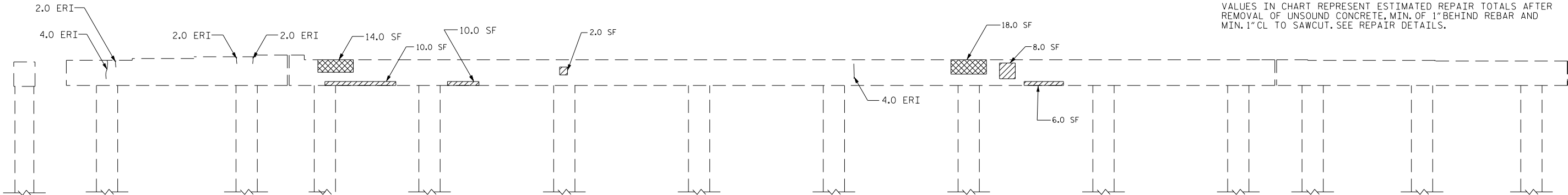
DocuSigned by:
Farzin Asefina
E06B400C4550A
SEAL
20103
ENGINEER
FARZIN ASEFINA

6/2/2016

DRAWN BY : M. WELDON DATE : 10/2015
CHECKED BY : W. SMITH DATE : 10/2015

REPAIR QUANTITY TABLE				
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	64.0	16.0		
CAP (HORIZONTAL FACE)	218.0	55.0		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIR	38.0	10.0		LN. FT
EPOXY RESIN INJECTION		LN. FT		
CAP		58.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	667.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.



END VIEW
SOUTH SIDE

ELEVATION
SPAN "C" SIDE

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

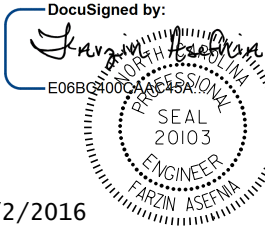
THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

- CONCRETE REPAIRS
- SHOTCRETE REPAIR
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					17



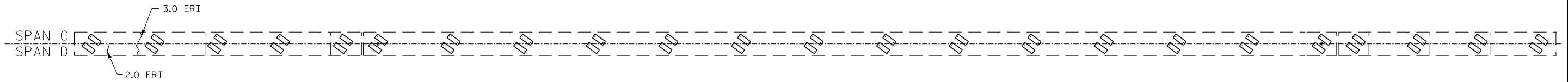
DocuSigned by:

Farzin Asefnia

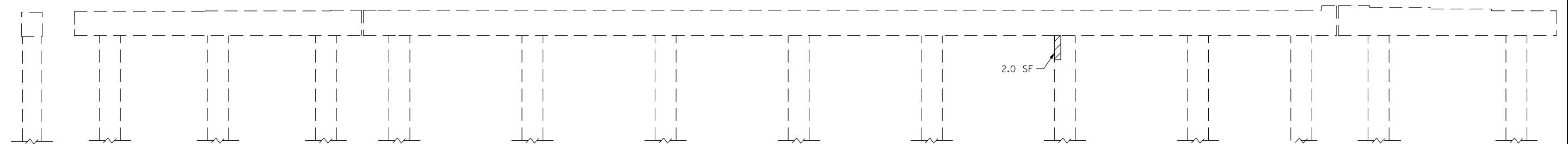
SEAL
20103
ENGINEER
FARZIN ASEFNIA

6/2/2016

DRAWN BY : M. WELDON DATE : 10/2015
CHECKED BY : W. SMITH DATE : 10/2015

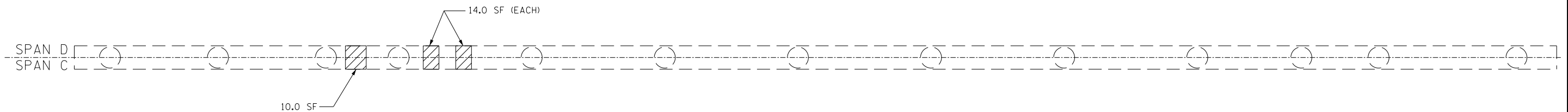


PLAN OF CAP
TOP



END VIEW
NORTH SIDE

ELEVATION
SPAN "C" SIDE

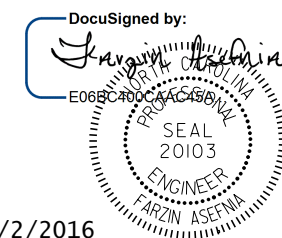


PLAN OF CAP
BOTTOM

- CONCRETE REPAIRS
- SHOTCRETE REPAIR
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384
SHEET 1 OF 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-15
2			4			TOTAL SHEETS 17



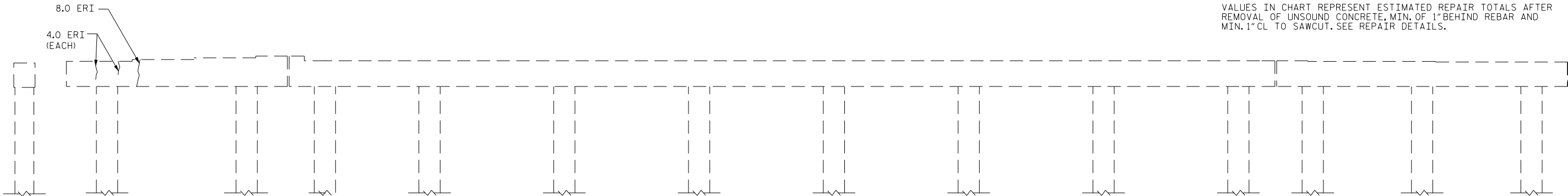
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DRAWN BY : M. WELDON DATE : 10/2015
CHECKED BY : W. SMITH DATE : 10/2015

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REPAIR QUANTITY TABLE				
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	38.0	10.0		
COLUMN (HORIZONTAL FACE)	4.0	1.0		
CONCRETE REPAIR	0.0	0.0		LN. FT
EPOXY RESIN INJECTION		LN. FT		
CAP		26.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	667.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.



END VIEW
SOUTH SIDE

ELEVATION
SPAN "D" SIDE

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

CONCRETE REPAIRS

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

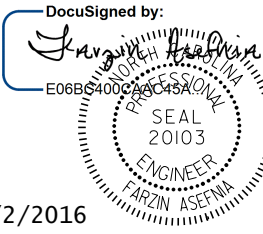
PROJECT NO. I-5734A

GUILFORD COUNTY

BRIDGE NO. 384

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 3					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					17



6/2/2016

DRAWN BY :	M. WELDON	DATE :	10/2015
CHECKED BY :	W. SMITH	DATE :	10/2015

NOTE

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

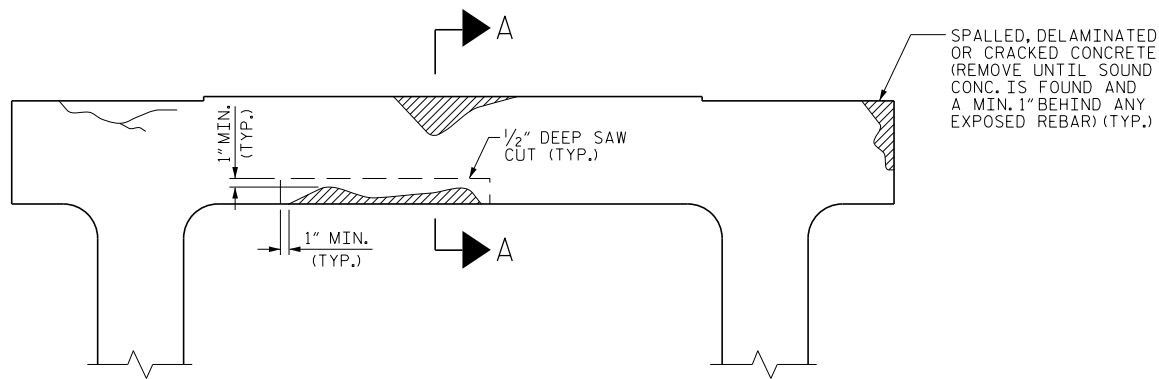
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

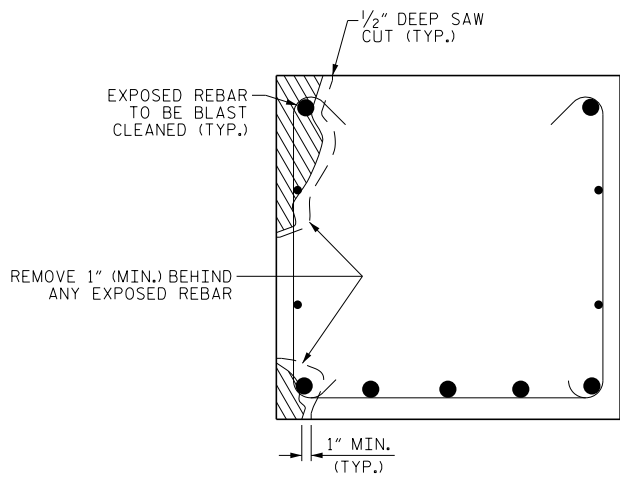
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

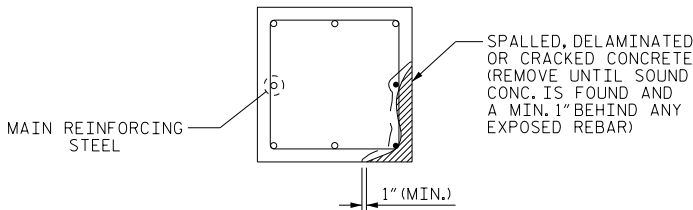


BENT CAP REPAIRS

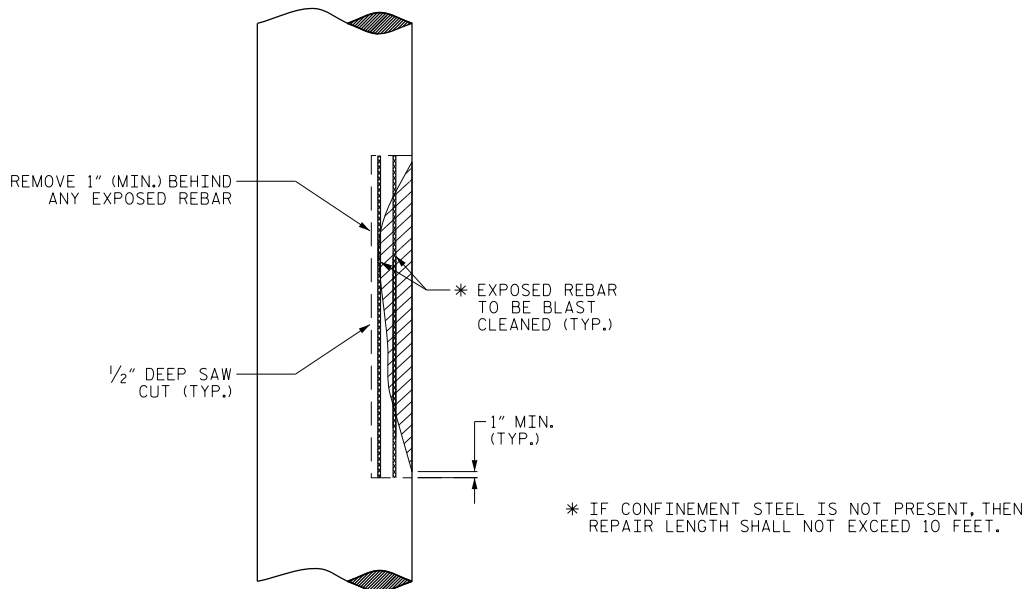


SECTION THRU CAP
(EXAMPLE ONLY, ACTUAL REBAR
SIZES & LOCATIONS MAY VARY)

CAP REPAIR



PLAN OF COLUMN

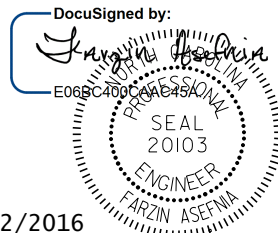


ELEVATION OF CAP

COLUMN REPAIR

PROJECT NO. I-5734A
GUILFORD COUNTY
BRIDGE NO. 384

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE TYPICAL CAP AND COLUMN REPAIR DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-17					TOTAL SHEETS 17



6/2/2016

DRAWN BY : M. WELDON DATE : 01/16
CHECKED BY : W. SMITH DATE : 01/16

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
	GRADE 60 - -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT,
ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS, SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

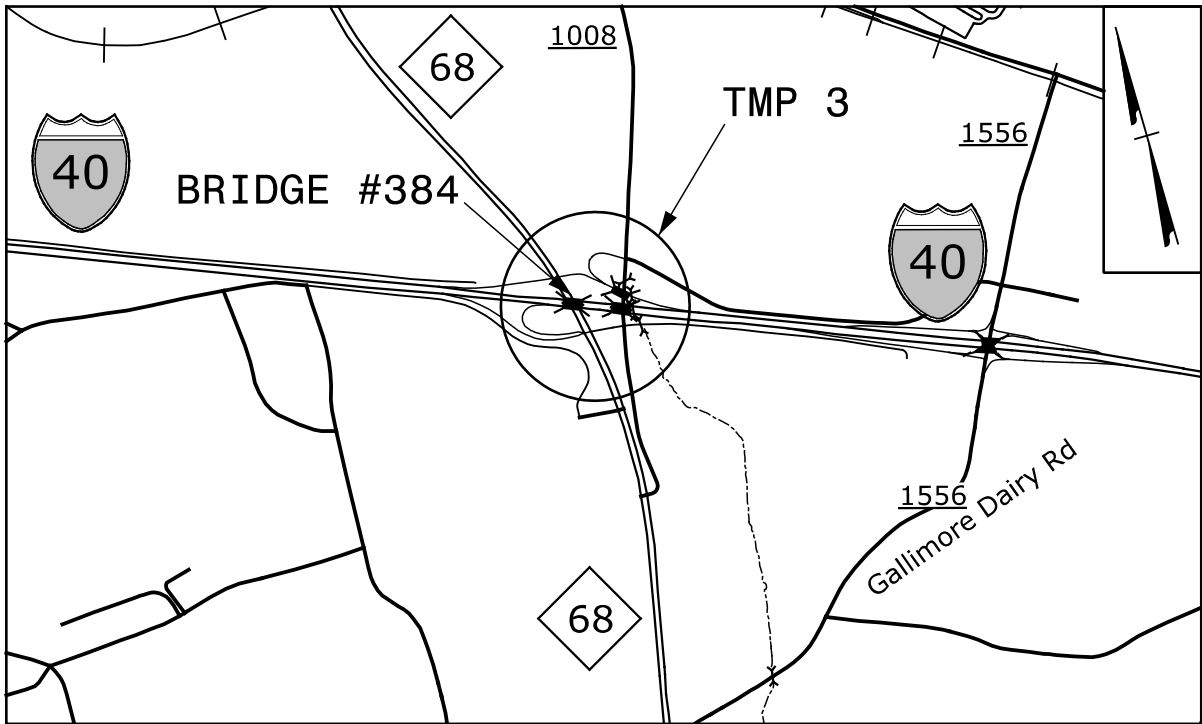
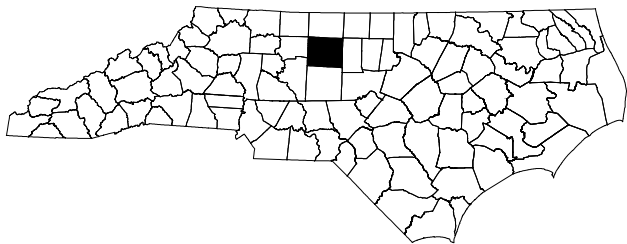
SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

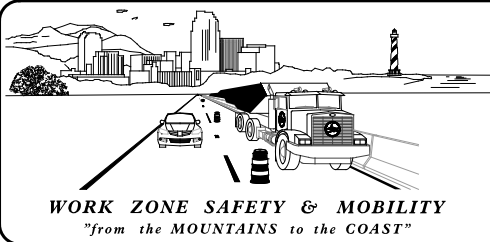
TRANSPORTATION MANAGEMENT PLAN

GUILFORD COUNTY



LOCATION: BRIDGE #384 ON I-40 OVER NC 68

TYPE OF WORK: BRIDGE PRESERVATION – SCARIFICATION, HYDRO-DEMOLITION, DECK REPAIR, LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, JOINT DEMOLITION, PAINTING EXISTING STRUCTURE AND REPAIR.



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
D. W. BISSETTE, P.E. TRAFFIC CONTROL PROJECT ENGINEER
H. SHYU, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
D. RICHARDSON TRAFFIC CONTROL DESIGN ENGINEER

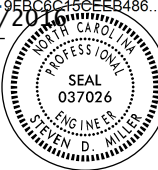


INDEX OF SHEETS

<u>SHEET NO.</u>	<u>TITLE</u>
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES AND MANAGEMENT STRATEGIES)
TMP-2	PHASING
TMP-3	EXAMPLE LANE CLOSURES

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UNLESS ALL SIGNATURES COMPLETED**

APPROVED: *Steve Miller*
DATE: 6/29/2016
SEAL



TIP PROJECT: I-5734A







ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES

LEGEND


GENERAL

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.
-  TEMP. SHORING (LOCATION PURPOSES ONLY)



 WORK AREA

 REMOVAL

 USER DEFINED (IF NEEDED)

 USER DEFINED (IF NEEDED)












SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY




PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES

TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM  SKINNY DRUM  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS


-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

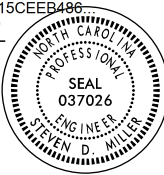
-  PAVEMENT MARKING SYMBOLS

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Steve Miller
APPROVED: 
DATE: 6/29/2016

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ROADWAY STANDARD
DRAWINGS & LEGEND

PROJ. REFERENCE NO.	SHEET NO.
I-5734A	TMP-1B

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

- A) DO NOT CLOSE OR NARROW ONE TRAVEL LANE IN A SINGLE DIRECTION AS FOLLOWS:
- | ROAD NAME | DAY AND TIME RESTRICTIONS |
|----------------|---|
| I-40 AND NC 68 | MONDAY TO SUNDAY
FROM 6:00 AM TO 8:00 PM |
- B) DO NOT CLOSE OR NARROW TWO TRAVEL LANES IN A SINGLE DIRECTION AS FOLLOWS:
- | ROAD NAME | DAY AND TIME RESTRICTIONS |
|----------------|--|
| I-40 AND NC 68 | MONDAY TO SUNDAY
FROM 6:00 AM TO 10:00 PM |
- C) DO NOT CLOSE OR NARROW THREE TRAVEL LANES IN A SINGLE DIRECTION AS FOLLOWS:
- | ROAD NAME | DAY AND TIME RESTRICTIONS |
|-----------|---|
| I-40 | MONDAY TO SUNDAY
FROM 6:00 A.M. TO 12:00 A.M. (MIDNIGHT) |
- D) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:
- | ROAD NAME | HOLIDAY |
|-----------|---------|
| I-40 | |
- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
 - FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 8:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00 P.M. THE FOLLOWING TUESDAY.
 - FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 8:00 P.M. MONDAY.
 - FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 8:00 P.M. TUESDAY.
 - FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
 - FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 8:00 P.M. TUESDAY.
 - FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 8:00 P.M. MONDAY.
 - FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

9. FOR THE CITY OF HIGH POINT FURNITURE MARKET, BETWEEN THE HOURS OF 6:00 A.M. THE MONDAY THAT THE MARKET BEGINS AND 8:00 P.M. THE FRIDAY THAT THE MARKET ENDS.
10. FOR THE WYNDHAM GOLF TOURNAMENT, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF THE TOURNAMENT AND 8:00 P.M. THE FOLLOWING MONDAY AFTER THE WEEK OF THE TOURNAMENT.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- E) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

- I) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

TRAFFIC PATTERN ALTERATIONS

- K) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- L) INSTALL ADVANCE WORK ZONE WARNING SIGNS NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES), AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- O) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS) PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

- P) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:
- | ROAD NAME | MARKING | MARKER |
|-----------|---------|--------|
| I-40 | PAINT | NONE |
- Q) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- R) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

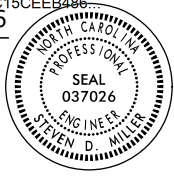

- T) CONTRACTOR SHALL COORDINATE WORK AND LANE CLOSURES FOR THIS PROJECT (I-5734A) WITH PROJECT I-5734
- U) LAW ENFORCEMENT SHALL BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

MANAGEMENT STRATEGIES

- MAINTAIN I-40 AND NC 68 TRAFFIC THROUGH LANE CLOSURES
- PROVIDE THIRTY (30) CALENDAR DAYS NOTICE TO THE ENGINEER, GUILFORD COUNTY EMERGENCY SERVICES, AND GUILFORD COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURE

DocuSigned by:

Steve Miller

APPROVED: 9FBC6C15CEE8486...			TRANSPORTATION OPERATIONS PLAN
DATE: 6/29/2016			
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I-5734A	TMP-2

PHASING

- STEP 1: USING RSD 1101.01 SHEETS 1 AND 2 OF 3, PLACE ADVANCE WARNING SIGNS ALONG I-40 AND NC 68.
- STEP 2: USING RSD 1101.02 SHEETS 3, 4, 8, AND 9 OF 15, COMPLETE BRIDGE PRESERVATION OPERATIONS FOR THE ESTABLISHED WORK AREA. RETURN TRAFFIC TO THE EXISTING PATTERN AT THE END OF EACH WORK DAY.
- STEP 3: REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

6/20/2016
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Steve Miller
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APPROVED: _____
DATE: 6/29/2016

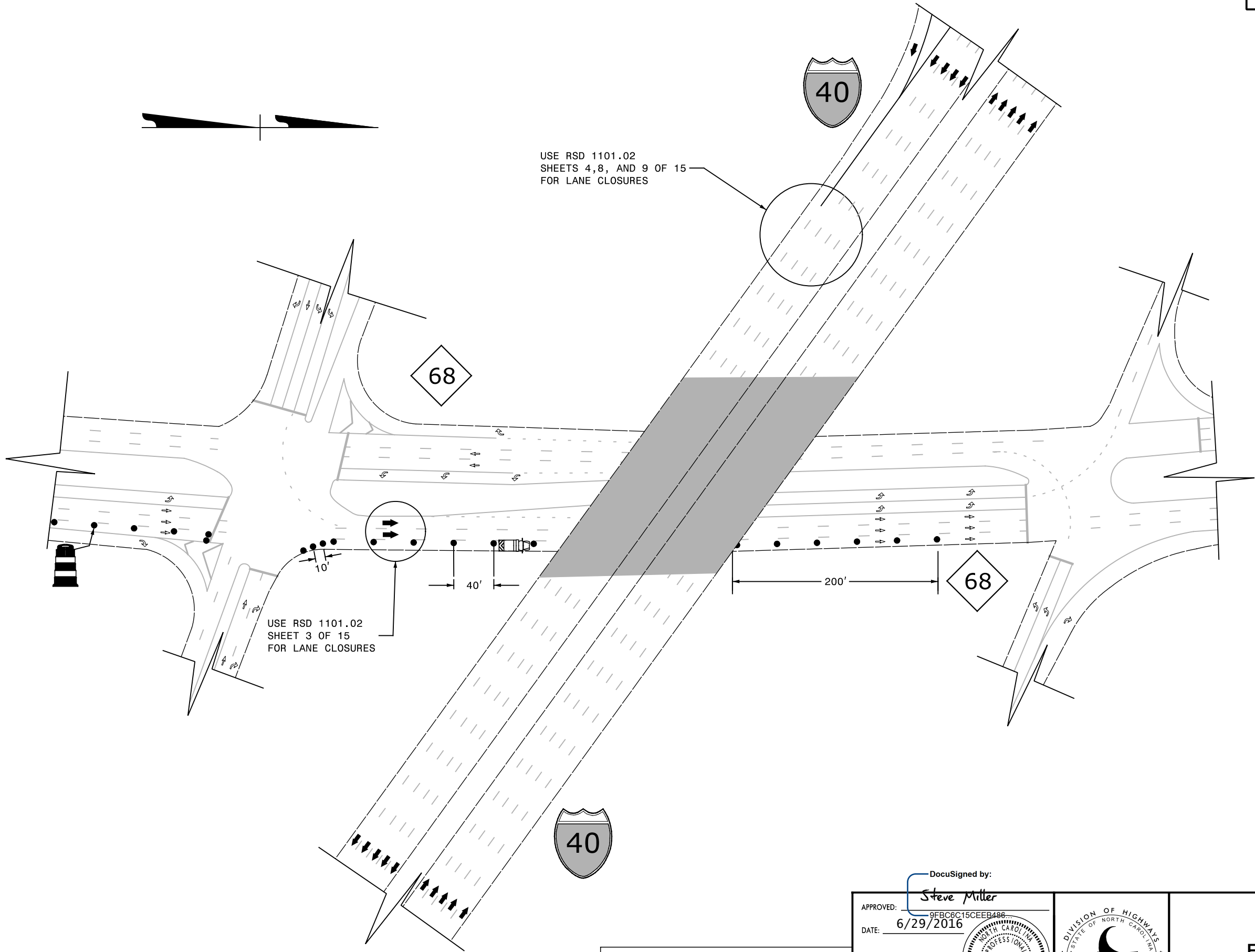
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASING

PROJ. REFERENCE NO.	SHEET NO.
I-5734A	TMP-3



6/20/2016
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EXAMPLE
LANE CLOSURES